



2020-IPR-B-000-015528

OpenStreetMap contribution to high-value datasets and the Green Deal data space

<p>Position for:</p> <p>Trainee</p>	<p>As the science and knowledge service of the Commission, the mission of Joint Research Centre is to support EU policies with independent evidence throughout the whole policy cycle.</p> <p>The JRC is located in 5 Member States (Belgium, Germany, Italy, the Netherlands and Spain). Further information is available at: http://www.jrc.ec.europa.eu.</p> <p>The Digital Economy Unit (JRC-DE) of the JRC Directorate Growth and Innovation provides quantitative and qualitative techno-socio-economic research targeting the impacts of Digital Transformation (DT) on the economy and society. It aims to provide an independent assessment of key opportunities and challenges for Europe arising from new digital technologies and of the measures that could be taken to shape future outcomes to the benefit of European society.</p> <p>The Unit has been the technical coordinator of the implementation of INSPIRE (Infrastructure for Spatial Information in Europe) Directive.</p> <p><u>Short description of activity:</u></p> <p>The traineeship aims at investigating the possible role of OpenStreetMap (OSM) in the frame of the new initiatives of the European Commission about the Green Deal data space and the high-value datasets of the Open Data Directive. Given the central role of the INSPIRE Directive in both these initiatives, the purpose of the traineeship is to explore the synergies between INSPIRE and OSM [1], in particular to develop an OSM encoding for INSPIRE data. In addition to assessing the potential of OSM for the creation/update of identified high-value datasets, the work will include: analysing and comparing the conceptual data models and default encoding of INSPIRE and OSM data; defining transformation rules to encode INSPIRE data into the OSM data structure (and</p>
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	<p>possibly vice versa); and applying such transformations on existing OSM/INSPIRE datasets for selected INSPIRE themes relevant to high-value datasets.</p> <p>The trainee will also document the pros and cons of the transformation, technical and organisational barriers and challenges encountered, as well as usability issues solved. The trainee is encouraged to present their findings in scientific papers and/or at conferences or workshops.</p> <p>Background: The European Strategy for Data [2] envisages the creation of a European single market for data through the establishment of a common European data space together with sectorial, interoperable data spaces, including the Green Deal data space to assist the Green Deal priority of the European Commission. In line with this strategy, the recent Open Data Directive [3] has paved the way for so-called high-value datasets, i.e. datasets with a high potential for commercial, AI-based and value-added EU-wide products and applications.</p> <p>The INSPIRE Directive (Infrastructure for Spatial Information in Europe) has established a legal, technical and organisational framework for the creation of a pan-European spatial data infrastructure in support to EU environmental policies. INSPIRE aims to facilitate public access to environmental spatial information across Europe and assist in policy-making across boundaries by fostering sharing of this information among public sector organisations of EU Member States. As such, INSPIRE plays a key role in the establishment of the Green Deal data space as well as in the identification and provision of high-value datasets. From the technical perspective the main components of the infrastructure, which is at large based on open standards (e.g. from ISO and the Open Geospatial Consortium - OGC), are metadata, data sets and network services.</p> <p>The spatial scope of INSPIRE covers 34 cross-sectoral data themes, whose conceptual data models are defined using the Unified Modeling Language (UML). The default encoding rule maps these UML models to XML Application Schemas, which makes the Geography Markup Language (GML) the default encoding for INSPIRE data. To improve the accessibility and usability of INSPIRE data, a recent action [4] has defined alternative encoding rules for INSPIRE data departing from the same UML models. Most notably, the action has</p>
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developed a GeoJSON encoding rule for INSPIRE. Other efforts are expected to follow within the INSPIRE community to develop additional encoding rules, targeting both specific community domains and/or specific formats (e.g. GeoPackage).

In parallel, the OpenStreetMap (OSM) crowdsourcing project is gaining popularity in many geospatial-related disciplines. Started in 2004, it has become an extremely rich and diversified database of spatial vector objects with a global coverage. Thanks to the open license under which it is distributed (ODbL), the OSM database is increasingly used by a variety of actors including governments, not-for-profit and humanitarian organizations, businesses and researchers. The number of contributors is steadily growing and many studies have already demonstrated that the quality of OSM data is often comparable, if not better, than the corresponding authoritative data sets.

References:

[1] Minghini M., Kotsev A. and Lutz M. (2019) Comparing INSPIRE and OpenStreetMap data: how to make the most out of the two worlds. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences Volume XLII-4/W14, 167-174. <https://www.int-arch-photogramm-remote-sens-spatial-inf-sci.net/XLII-4-W14/167/2019/>

[2] https://ec.europa.eu/info/sites/info/files/communication-european-strategy-data-19feb2020_en.pdf

[3] <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32019L1024&from=EN>

[4] <https://github.com/INSPIRE-MIF/2017.2>

Qualifications:

Essential:

- The candidate shall have a Masters/PhD degree, or be enrolled in a PhD degree or the final year of a Masters degree in Geoinformation Science, Geomatics, Computer Science, or a related discipline.
- The candidate shall be very familiar with geospatial data formats and standards and the OpenStreetMap project (knowledge of the data

	<p>model, experience in contributing and using OpenStreetMap data).</p> <ul style="list-style-type: none"> • Good knowledge of spoken and written English (level B2). <p><u>Advantage:</u></p> <ul style="list-style-type: none"> • Knowledge and experience in INSPIRE • Knowledge of UML • Basic programming skills (data management & processing) <p><u>For general eligibility requirements, please read the rules governing the traineeship scheme of the JRC:</u></p> <p>https://ec.europa.eu/jrc/en/working-with-us/jobs/temporary-positions/jrc-trainees</p>
Unit /Directorate	Directorate B Growth and Innovation Unit B.6 Digital Economy
Duration	5 months
Preferred starting date	Q4/2020
JRC Site	Ispra
Country	Italy
<u>JRC contact details</u>	<p>For any technical problems with your application, please contact:</p> <p>HR-AMC8-RECRUITMENT-TOOLS-SUPPORT@ec.europa.eu</p>